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=> file agricola caplus biosis

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FILE 'CAPLUS' ENTERED AT 09:55:17 ON 31 MAR 2004
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FILE 'BIOSIS' ENTERED AT 09:55:17 ON 31 MAR 2004
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=> s starch synthase ii or ssii
L1 183 STARCH SYNTHASE II OR SSII

=> s l1 and (gene or cdna or coding region)
L2 81 L1 AND (GENE OR CDNA OR CODING REGION)

=> dup rem l2
PROCESSING COMPLETED FOR L2
L3 47 DUP REM L2 (34 DUPLICATES REMOVED)

=> d 1-10 ti

L3 ANSWER 1 OF 47 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 1
TI Cloning and analysis of WF146 protease, a novel thermophilic subtilisin-like protease with four inserted surface loops

L3 ANSWER 2 OF 47 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 2
TI Protein and **cDNA** sequences of corn **gene** dull1 coding for a starch synthase and use

L3 ANSWER 3 OF 47 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved. (2004) on STN
TI Effect of temperature on expression of genes encoding enzymes for starch biosynthesis in developing wheat endosperm.

L3 ANSWER 4 OF 47 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 3
TI Map-based cloning of the ALK **gene**, which controls the gelatinization temperature of rice

L3 ANSWER 5 OF 47 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 4
TI Cloning and characterization of the granule-bound **starch synthase II gene** in rice: **gene** expression is regulated by the nitrogen level, sugar and circadian rhythm

L3 ANSWER 6 OF 47 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 5
TI Toxicity of Bacillus sphaericus LP1-G against susceptible and resistant

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NEWS 5	SEP 29	DISSABS now available on STN
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NEWS 7	OCT 21	BIOSIS file reloaded and enhanced
NEWS 8	OCT 28	BIOSIS file segment of TOXCENTER reloaded and enhanced
NEWS 9	NOV 24	MSDS-CCOHS file reloaded
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NEWS 11	DEC 08	IMS file names changed
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NEWS 21	JAN 27	A new search aid, the Company Name Thesaurus, available in CA/CAplus
NEWS 22	FEB 05	German (DE) application and patent publication number format changes
NEWS 23	MAR 03	MEDLINE and LMEDLINE reloaded
NEWS 24	MAR 03	MEDLINE file segment of TOXCENTER reloaded
NEWS 25	MAR 03	FRANCEPAT now available on STN
NEWS 26	MAR 29	Pharmaceutical Substances (PS) now available on STN
NEWS 27	MAR 29	WPIFV now available on STN
NEWS 28	MAR 29	No connect hour charges in WPIFV until May 1, 2004
NEWS 29	MAR 29	New monthly current-awareness alert (SDI) frequency in RAPRA

NEWS EXPRESS	MARCH 5 CURRENT WINDOWS VERSION IS V7.00A, CURRENT MACINTOSH VERSION IS V6.0b(ENG) AND V6.0Jb(JP), AND CURRENT DISCOVER FILE IS DATED 3 MARCH 2004
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NEWS LOGIN	Welcome Banner and News Items
NEWS PHONE	Direct Dial and Telecommunication Network Access to STN
NEWS WWW	CAS World Wide Web Site (general information)

Enter NEWS followed by the item number or name to see news on that specific topic.

Culex quinquefasciatus and the cloning of the mosquitocidal toxin **gene**

L3 ANSWER 7 OF 47 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
TI Chemical synthesis of methyl 6'-alpha-maltosyl-alpha-maltotrioside and its use for investigation of the action of **starch synthase II**.

L3 ANSWER 8 OF 47 CAPLUS COPYRIGHT 2004 ACS on STN
TI The structural organisation of the **gene** encoding class II starch synthase of wheat and barley and the evolution of the genes encoding starch synthases in plants

L3 ANSWER 9 OF 47 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
TI Akt2 mimics insulin and phosphorylates SRp40, a serine/arginine (SR)-rich RNA binding protein, in vivo to regulate protein kinase C betaII exon inclusion.

L3 ANSWER 10 OF 47 CAPLUS COPYRIGHT 2004 ACS on STN
TI Mutations in **starch synthase II** resulting in reduced amylopectin content and higher dietary fiber of grain

=> d 2 ab

L3 ANSWER 2 OF 47 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 2
AB The maize **gene** dull1 (du1) of the present invention is a determinant of the structure of endosperm starch. Mutations of du1 affect the activity of at least two enzymes involved in starch biosynthesis, namely the starch synthase, **SSII**, and the starch branching enzyme, SBEIIa. Du1 codes for a predicted 1674 residue protein, and is expressed with a unique temporal pattern in endosperm but is undetectable in leaf or root. The size of the Du1 product and its expression pattern match precisely the known characteristics of maize **SSII**. The Du1 product contains two different repeated regions in its unique amino terminus, one of which is identical to a conserved segment of the starch debranching enzymes. The **cDNA** provided for in the present invention encodes **SSII**, and mutations within this **gene** affect multiple aspects of starch biogenesis by disrupting an enzyme complex containing starch synthase(s), starch branching enzyme(s), and possibly starch debranching enzyme.

=> d 2 pi

L3 ANSWER 2 OF 47 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 2

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 6639125	B1	20031028	US 2000-554467	20000512
US 5981728	A	19991109	US 1997-968542	19971112
WO 9924575	A1	19990520	WO 1998-US24225	19981112

W: AL, AM, AT, AU, AZ, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TR, TT, UA, UG, US, UZ, VN, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

US 2004049810	A1	20040311	US 2003-634262	20030805

=> d 3 ab

L3 ANSWER 3 OF 47 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved. (2004) on STN

=> d 3 so

L3 ANSWER 3 OF 47 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved. (2004) on STN
SO Plant science, May 2003. Vol. 164, No. 5. p. 873-881
Publisher: Oxford, UK : Elsevier Science Ltd.
CODEN: PLSCE4; ISSN: 0168-9452

=> d 4 ab

L3 ANSWER 4 OF 47 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 3
AB Gelatinization temperature (GT) is an important parameter for evaluating the cooking and eating quality of rice besides amylose content (AC). The inheritance of the genes affecting GT has been widely studied and is considered to be controlled by a major **gene**. Here, we report the map-based cloning of rice ALK that encodes the soluble **starch synthase II** (SSSII). Comparison between the DNA sequences from different, rice varieties, together with the results obtained with digestion of the rice seeds in alkali solution, indicates that the base substitutions in coding sequence of ALK may cause the alteration in GT.

=> d 4 so

L3 ANSWER 4 OF 47 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 3
SO Science in China, Series C: Life Sciences (2003), 46(6), 661-668
CODEN: SCCLFO; ISSN: 1006-9305

=> d 5 ab

L3 ANSWER 5 OF 47 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 4
AB A full-length coding domain sequence of a **gene** analogous to granule-bound starch synthase (GBSS; ADP-glucose-starch glucosyltransferase, EC 2.4.1.21) was cloned and defined as OsGBSSII based on a Nitrogen (N)-starvation-induced **cDNA** library constructed using the rapid subtraction hybridization method. The deduced amino acid sequence of OsGBSSII was 62-85% identical to those of GBSS proteins from other plant species. The exon/intron organization ofOsGBSSII was similar to that of OsGBSSI. OsGBSSII was mainly expressed in leaves and its protein was exclusively bound to starch granules in rice leaves, which suggests that the amylose in rice leaves is synthesized by OsGBSSII. N-starvation-induced expression of OsGBSSII could be repressed by supplying nitrate, ammonia or amino acid (glutamic acid or glutamine), glucosamine (an inhibitor of hexokinase) or dark conditions. These results indicate that N-starvation induction was dependent on the photosynthetic product and hexokinase in rice leaves. Sugars induced the accumulation of OsGBSSII transcripts in excised leaves through glycolysis-dependent pathways. OsGBSSII **gene** expression is regulated by the circadian rhythm in rice leaves.

=> d 5 so

L3 ANSWER 5 OF 47 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 4
SO Planta (2003), 218(2), 261-268
CODEN: PLANAB; ISSN: 0032-0935

=> d 7 ab

L3 ANSWER 7 OF 47 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
AB The branched pentasaccharide methyl 6'-alpha-maltosyl-alpha-maltotrioside was chemically synthesised and investigated as a primer for particulate **starch synthase II (SSII)** using starch granules prepared from the low-amylose pea mutant lam as the enzyme source. For chemical synthesis, the trichloroacetimidate activation method was used to synthesise methyl O-(2,3,4,6-tetra-O-benzyl-alpha-D-glucopyranosyl)-(1fwdarw4)-O-(2,3,6-tri-O-benzyl-alpha-D-glucopyranosyl)-(1fwdarw6)-O-((2,3,4,6-tetra-O-benzyl-alpha-D-glucopyranosyl-(1fwdarw4))-O-(2,3-di-O-benzyl-alpha-D-glucopyranosyl)-(1fwdarw4)-2,3,6-tri-O-benzyl-alpha-D-glucopyranoside, which was then debenzylated to provide the desired branched pentasaccharide methyl 6'-alpha-maltosyl-alpha-maltotrioside as documented by 1H and 13C NMR spectroscopy. Using a large excess of the maltoside, the pentasaccharide was tested as a substrate for **starch synthase II (SSII)**. Both of the non-reducing ends of methyl 6'-alpha-maltosyl-alpha-maltotrioside were extended equally resulting in two hexasaccharide products in nearly equal amounts. Thus, **SSII** catalyses an equimolar and non-processive elongation reaction of this substrate. Accordingly, the presence of the alpha-1,6 linkages does not dictate a specific structure of the pentasaccharide in which only one of the two non-reducing ends are available for extension.

=> d 8 ab

L3 ANSWER 8 OF 47 CAPLUS COPYRIGHT 2004 ACS on STN
AB Wheat and barley contain at least four classes of starch synthases in the endosperm, granule bound starch synthase I (GBSSI) and starch synthases I, II and III (SSI, **SSII**, SSIII). In this work, **SSII** in barley is shown to be associated with the starch granule by using antibodies. A **cDNA** from barley encoding **SSII** and the genes for **SSII** from barley and Aegilops tauschii (A. tauschii, the D genome donor to wheat) are characterized. Fluorescent in situ hybridization (FISH) and PCR were used to localize the wheat **SSII gene** to the short arm of chromosome 7, showing synteny with the location of the rice **SSII gene** to the short arm of chromosome 6. Comparison of the genes encoding **SSII** of A. tauschii, barley and Arabidopsis showed a conserved exon-intron structure although the size of the introns varied considerably. Extending such comparison between the genes encoding starch synthases (GBSSI, SSI, **SSII** and SSIII) from A. tauschii and Arabidopsis showed that the exon-intron structures are essentially conserved. Sep. and distinct genes for the individual starch synthases therefore existed before the separation of monocotyledons and dicotyledons.

=> d 8 so

L3 ANSWER 8 OF 47 CAPLUS COPYRIGHT 2004 ACS on STN
SO Functional & Integrative Genomics (2003), 3(1-2), 76-85
CODEN: FIGUBY; ISSN: 1438-793X

=> d 10 ab

L3 ANSWER 10 OF 47 CAPLUS COPYRIGHT 2004 ACS on STN

AB Barley with reduced **SSII** (**starch synthase II**) activity has a starch structure with reduced amylopectin content and consequently a high relative amylose content. The amylose levels in the grain are higher than 70% (weight/weight) of the starch content in a preferred embodiment. The starch preferably has a reduced amylopectin chain length distribution where the d.p. of 6-11 residues is greater than 25-35%, less than 55-65% for 12-30 residues and between 5-10% for 31-60 residues. Addnl. the grain can have a relatively high β glucan content which may be more than 15% of the total non-hulled grain weight The structure of the starch may also be altered in a number of ways which can be characterized by having a low gelatinsation temperature (as determined by lower a ΔH of the first peak in differential scanning calorimetry) but with reduced swelling. The swelling volume is preferably between 2.0 and 3.2. The viscosity of gelatinized starch of the starch is also reduced. The pasting temperature of the starch is higher than 80°C. There is a chain length distribution of the amylopectin content and a low crystallinity of the starch. The starch is also characterized by having high levels of lipid associated starch exhibiting very high levels of V form starch crystallinity. The V complex crystallinity may represent 10-80% of the starch crystallinity while no detectable amts. of A complex crystallinity of starch may be present. The dietary fiber content of the starch is high. This grain desirable dietary and food processing characteristics. The grain may be milled, ground, pearled, rolled, kibbled, cracked or the whole grain. The grain may be milled to enhance the amount of aleurone layer present. In a preferred embodiment, the grain may have a length to thickness ratio of 4.0 or less. Preferably, no significant coloration of the grain is observed and the starch content of the grain is greater than 12% of the naked grain.

=> d 10 so

L3 ANSWER 10 OF 47 CAPLUS COPYRIGHT 2004 ACS on STN
SO PCT Int. Appl., 107 pp.
CODEN: PIXXD2

=> d 10 pi

L3 ANSWER 10 OF 47 CAPLUS COPYRIGHT 2004 ACS on STN

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2002037955	A1	20020516	WO 2001-AU1452	20011109
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	AU 2002014804	A5	20020521	AU 2002-14804	20011109
	EP 1331845	A1	20030806	EP 2001-983291	20011109
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				

=> d 11-20 ti

L3 ANSWER 11 OF 47 CAPLUS COPYRIGHT 2004 ACS on STN
TI Caryopsis-specific promoter of wheat for use in tissue-specific expression

of foreign genes in cereal

L3 ANSWER 12 OF 47 CAPLUS COPYRIGHT 2004 ACS on STN
TI Transgenic plant expressing new starch branching enzyme IIb (BEIIb) from wheat and its use for improvement of food and non food product quality

L3 ANSWER 13 OF 47 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
TI Cold adaptation of a mesophilic subtilisin-like protease by laboratory evolution.

L3 ANSWER 14 OF 47 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
TI Directed evolution study of temperature adaptation in a psychrophilic enzyme.

L3 ANSWER 15 OF 47 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
TI Wheat granule-bound starch synthase I and II are encoded by separate genes that are expressed in different tissues.

L3 ANSWER 16 OF 47 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 6
TI Purification and characterization of soluble starch synthases from maize endosperm

L3 ANSWER 17 OF 47 CAPLUS COPYRIGHT 2004 ACS on STN
TI Maize starch synthase **gene** du1 and uses in starch production

L3 ANSWER 18 OF 47 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
TI Dull1 coding for a novel starch synthase and uses thereof.

L3 ANSWER 19 OF 47 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved. (2004) on STN DUPLICATE 7
TI Molecular cloning of an apoptosis-inducing protein, pierisin, from cabbage butterfly: possible involvement of ADP-ribosylation in its activity.

L3 ANSWER 20 OF 47 CAPLUS COPYRIGHT 2004 ACS on STN
TI Conserved mechanism of PLAG1 activation in salivary gland tumors with and without chromosome 8q12 abnormalities: identification of **SSII** as a new fusion partner **gene**

=> d 15 ab

L3 ANSWER 15 OF 47 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
AB Studies of waxy mutations in wheat and other cereals have shown that null mutations in genes encoding granule-bound starch synthase I (GBSSI) result in amylose-free starch in endosperm and pollen grains, whereas starch in other tissues may contain amylose. We have isolated a **cDNA** from waxy wheat that encodes GBSSII, which is thought to be responsible for the elongation of amylose chains in non-storage tissues. The deduced amino acid sequences of wheat GBSSI and GBSSII were almost 66% identical, while those of wheat GBSSII and potato GBSSI were 72% identical. GBSSII was expressed in leaf, culm, and pericarp tissue, but transcripts were not detected in endosperm tissue. In contrast, GBSSI expression was high in endosperm tissue. The expression of GBSSII mRNA in pericarp tissue was similar at the midpoints of the day and night periods. The GBSSII genes were mapped to chromosomes 2AL, 2B, and 2D, whereas GBSSI genes are located on group 7 chromosomes. Gel-blot analysis indicated that genes related to GBSSII also occur in barley, rice, and maize. The possible role of GBSSII in starch synthesis is discussed.

=> d 16 ab

L3 ANSWER 16 OF 47 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 6
AB This study identified and characterized soluble starch synthase of maize endosperm that was initially revealed as the **SSII** activity peak in anion exchange chromatog. At least 6 different genes coding for starch synthases are expressed in maize, although previously it was not known which of these was responsible for the **SSII** activity peak. The enzyme activity in the **SSII** peak was neutralized to a large extent by antibodies raised against the product of the Du1 **gene**, but was not affected by antibodies specific for the other highly expressed soluble starch synthase, zSSI, or for the zSSIIa or zSSIIb isoforms. These data provide direct evidence that Du1 codes for the starch synthase responsible for the **SSII** activity peak. This starch synthase was purified .apprx.350-fold from endosperm exts. The following enzymic properties of the **SSII** activity were determined: temperature optimum, thermostability, pH effects, Km for different glucan primers and the glucosyl unit donor ADP-glucose, Vmax using various primers, and stimulation by citrate. These properties were compared to those of zSSI purified over 1600-fold from maize endosperm by a parallel procedure. The major differences between the 2 enzymes were that the **SSII** activity displayed higher Km values for ADP-glucose, a distinct temperature range for maximal activity, and different relative activities toward specific exogenous substrates. The purified SSI and **SSII** activities both were shown to be capable of elongating malto-oligosaccharide primers in vitro. (c) 2000 Academic Press.

=> d 16 so

L3 ANSWER 16 OF 47 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 6
SO Archives of Biochemistry and Biophysics (2000), 373(1), 135-146
CODEN: ABBIA4; ISSN: 0003-9861

=> d 17 ab

L3 ANSWER 17 OF 47 CAPLUS COPYRIGHT 2004 ACS on STN
AB Disclosed are the maize du1 **gene**, the encoded starch synthase isoenzyme II, and production of starch with recombinant du1-expressing cells or transgenic plants. The maize **gene** dull1 (du1) of the present invention is a determinant of the structure of endosperm starch. Mutations of du1 affect the activity of at least two enzymes involved in starch biosynthesis, namely the starch synthase, **SSII**, and the starch branching enzyme, SBEIIa. Du1 codes for a predicted 1674 residue protein, and is expressed with a unique temporal pattern in endosperm but is undetectable in leaf or root. The size of the Du1 product and its expression pattern match precisely the known characteristics of maize **SSII**. The Du1 product contains two different repeated regions in its unique amino terminus, one of which is identical to a conserved segment of the starch debranching enzymes. The **cDNA** provided for in the present invention encodes **SSII**, and mutations within this **gene** affect multiple aspects of starch biogenesis by disrupting an enzyme complex containing starch synthase(s), starch branching enzyme(s), and possibly starch debranching enzyme(s).

=> d 17 so

L3 ANSWER 17 OF 47 CAPLUS COPYRIGHT 2004 ACS on STN
SO PCT Int. Appl., 138 pp.
CODEN: PIXXD2

=> d 17 pi

L3 ANSWER 17 OF 47 CAPLUS COPYRIGHT 2004 ACS on STN

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 9924575	A1	19990520	WO 1998-US24225	19981112
W: AL, AM, AT, AU, AZ, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TR, TT, UA, UG, US, UZ, VN, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
US 5981728	A	19991109	US 1997-968542	19971112
CA 2309346	AA	19990520	CA 1998-2309346	19981112
AU 9915236	A1	19990531	AU 1999-15236	19981112
AU 761419	B2	20030605		
EP 1030922	A1	20000830	EP 1998-959440	19981112
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
BR 9814864	A	20011106	BR 1998-14864	19981112
JP 2001522604	T2	20011120	JP 2000-520569	19981112
NZ 504534	A	20021220	NZ 1998-504534	19981112
MX 200004586	A	20001110	MX 2000-4586	20000512
US 6639125	B1	20031028	US 2000-554467	20000512

=> d 18 ab

L3 ANSWER 18 OF 47 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN

AB The maize **gene** dull1 (du1) of the present invention is a determinant of the structure of endosperm starch. Mutations of du1 affect the activity of at least two enzymes involved in starch biosynthesis, namely the starch synthase, **SSII**, and the starch branching enzyme, SBEIIa. Du1 codes for a predicted 1674 residue protein, and is expressed with a unique temporal pattern in endosperm but is undetectable in leaf or root. The size of the Du1 product and its expression pattern match precisely the known characteristics of maize **SSII**. The Du1 product contains two different repeated regions in its unique amino terminus, one of which is identical to a conserved segment of the starch debranching enzymes. The **cDNA** provided for in the present invention encodes **SSII**, and mutations within this **gene** affect multiple aspects of starch biogenesis by disrupting an enzyme complex containing starch synthase(s), starch branching enzyme(s), and possibly starch debranching enzyme(s).

=> d 18 pi

L3 ANSWER 18 OF 47 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN

PI US 5981728 November 09, 1999

=> d 20 ab

L3 ANSWER 20 OF 47 CAPLUS COPYRIGHT 2004 ACS on STN

AB The authors have previously shown that the developmentally regulated zinc finger **gene** pleomorphic adenoma **gene** 1 (PLAG1) is the target **gene** in 8q12 in pleomorphic adenomas of the salivary glands with t(3;8)(p21;q12) translocations. The t(3;8) results in promoter swapping between PLAG1 and the constitutively expressed **gene** for β-catenin (CTNNB1), leading to activation of PLAG1 expression and reduced expression of CTNNB1. Here the authors have studied the expression of PLAG1 by Northern blot anal. in 47 primary benign and malignant human tumors with or without cytogenetic

abnormalities of 8q12. Overexpression of PLAG1 was found in 23 tumors (49%). Thirteen of 17 pleomorphic adenomas with a normal karyotype and 5 of 10 with 12q13-15 abnormalities overexpressed PLAG1, which demonstrates that PLAG1 activation is a frequent event in adenomas irresp. of karyotype. In contrast, PLAG1 was overexpressed in only 2 of 11 malignant salivary gland tumors analyzed, which suggests that, at least in salivary gland tumors, PLAG1 activation preferentially occurs in benign tumors. PLAG1 over-expression was also found in three of nine mesenchymal tumors, i.e., in two uterine leiomyomas and one leiomyosarcoma. RNase protection, rapid amplification of 5'-**cDNA** ends (5'-RACE), and reverse transcription-PCR analyses of five adenomas with a normal karyotype revealed fusion transcripts in three tumors. Nucleotide sequence anal. of these showed that they contained fusions between PLAG1 and CTNNB1 (one case) or PLAG1 and a novel fusion partner **gene**, i.e., the **gene** encoding the transcription elongation factor SII (two cases). The fusions occurred in the 5' noncoding region of PLAG1, leading to exchange of regulatory control elements and, as a consequence, activation of PLAG1 **gene** expression. Because all of the cases had grossly normal karyotypes, the rearrangements must result from cryptic rearrangements. The results suggest that in addition to chromosomal translocations and cryptic rearrangements, PLAG1 may also be activated by mutations or indirect mechanisms. The authors' findings establish a conserved mechanism of PLAG1 activation in salivary gland tumors with and without 8q12 aberrations, which indicates that such activation is a frequent event in these tumors.

=> d 21-30 ti

L3 ANSWER 21 OF 47 CAPLUS COPYRIGHT 2004 ACS on STN
TI Plant-like starches and the method of making them in hosts

L3 ANSWER 22 OF 47 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved. (2004) on STN DUPLICATE 8
TI Isolation and characterization of the zSSIIa and zSSIIb starch synthase **cDNA** clones from maize endosperm.

L3 ANSWER 23 OF 47 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved. (2004) on STN DUPLICATE 9
TI Mutations in the **gene** encoding **starch synthase II** profoundly alter amylopectin structure in pea embryos.

L3 ANSWER 24 OF 47 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved. (2004) on STN DUPLICATE 10
TI Characterization of dull1, a maize **gene** coding for a novel starch synthase.

L3 ANSWER 25 OF 47 CAPLUS COPYRIGHT 2004 ACS on STN
TI Cloning and **cDNA** sequence of starch branching enzyme II of potato and its use for modification of branching in amylopectin starch

L3 ANSWER 26 OF 47 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 11
TI **Gene** from tropical Bacillus sphaericus encoding a protease closely related to subtilisins from Antarctic bacilli

L3 ANSWER 27 OF 47 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
TI Soluble **starch synthase II** activity is required for the building of the amylopectin crystal in Chlamydomonas

reinhardtii.

L3 ANSWER 28 OF 47 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved. (2004) on STN DUPLICATE 12
TI Unusual amino acid determinants of host range in the Mtx2 family of mosquitocidal toxins.

L3 ANSWER 29 OF 47 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved. (2004) on STN DUPLICATE 13
TI New **gene** from nine Bacillus sphaericus strains encoding highly conserved 35.8-kilodalton mosquitocidal toxins.

L3 ANSWER 30 OF 47 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved. (2004) on STN DUPLICATE 14
TI Evidence that a 77-kilodalton protein from the starch of pea embryos is an isoform of starch synthase that is both soluble and granule bound.

=> d 21 ab

L3 ANSWER 21 OF 47 CAPLUS COPYRIGHT 2004 ACS on STN
AB More typically bacterial, but also plant hosts are transformed by constructs containing genes from the starch pathway (e.g., soluble starch synthase genes SSI, SSIIa, SSIIb; granule-bound starch synthase **gene** GBSS; and starch branching enzyme genes BEI and BEII). The starches produced by these transformed hosts may be novel. The host may also express exogenous genes related to bacterial glycogen production (e.g., glgA, glgB, and glgC). Genes producing modified enzymes are also used. Hosts are described which express ≥ 1 nonstarch **gene** active in production of amylopectin and/or amylose (e.g., debranching enzyme (su1), sh2, and bt2). ADP-glucose pyrophosphorylase, pyrophosphorylase and glycogen synthase genes are also used to transform hosts. Construction is described of Escherichia coli expression vectors pExs-trc and pExs-trc3, which are used for expressing corn soluble starch synthase and starch branching enzymes genes in E. coli strain HPG204 produced to be deficient in glycogen branching enzyme and glycogen synthase. Highly branched α-glucan and linear α-1→4-polysaccharides are isolated from the transformed E. coli.

=> d 22 agb
'AGB' IS NOT A VALID FORMAT
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REENTER DISPLAY FORMAT FOR ALL FILES (FILEDEFAULT):ab

L3 ANSWER 22 OF 47 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved. (2004) on STN DUPLICATE 8
AB Two starch synthase clones, zSSIIa and zSSIIb, were isolated from a **cDNA** library constructed from W64A maize endosperm. zSSIIa and zSSIIb are 3124 and 2480 bp in length, and contain open reading frames of 732 and 698 amino acid residues, respectively. The deduced amino acid sequences of the two clones share 58.1% sequence identity. Amino acid sequence identity between the zSSIIa and zSSIIb clones and the

starch synthase II clones of potato and pea ranges between 45 to 51%. The predicted amino acid sequence from each **SSII cDNA** contains the KXGGL consensus motif at the putative ADP-Glc binding site. Both clones also contain putative transit peptides followed by the VRAA(E)A motif, the consensus cleavage site located at the C-terminus of chloroplast transit peptides. The identity of the zSSIIa and zSSIIb clones as starch synthases was confirmed by expression of enzyme activity in Escherichia coli. Genomic DNA blot analysis revealed two copies of zSSIIa and a single copy of zSSIIb. zSSIIa was expressed predominantly in the endosperm, while transcripts for zSSIIb were detected mainly in the leaf at low abundance. These findings establish that the zSSIIa and zSSIIb genes are characteristically distinct from genes encoding granule-bound starch synthase I (Waxy protein) and starch synthase I.

=> d 22 so

L3 ANSWER 22 OF 47 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved. (2004) on STN DUPLICATE 8
SO Plant molecular biology, July 1998. Vol. 37, No. 4. p. 639-649
Publisher: Dordrecht : Kluwer Academic Publishers.
CODEN: PMBIDB; ISSN: 0167-4412

=> d 23 ab

L3 ANSWER 23 OF 47 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved. (2004) on STN DUPLICATE 9
AB Mutations at the rug5 (rugosus5) locus have been used to elucidate the role of the major soluble isoform of **starch synthase II(SSII)** in amylopectin synthesis in the developing pea embryo. The **SSII gene** maps to the rug5 locus, and the **gene** in one of three rug5 mutant lines has been shown to carry a base pair substitution that introduces a stop codon into the open reading frame. All three mutant alleles cause a dramatic reduction or loss of the **SSII** protein. The mutations have pleiotropin effects on the activities of other isoforms of starch synthase but apparently not on those of other enzymes of starch synthesis. Those mutations result in abnormal starch granule morphology and amylopectin structure. Amylopectin contains fewer chains of intermediate length (B2 and B3 chains) and more very short and very long chains than does amylopectin from wild-type embryos. The results suggest that **SSII** may play a specific role in the synthesis of B2 and B3 chains of amylopectin. The extent to which these findings can be extrapolated to other species is discussed.

=> d 23 so

L3 ANSWER 23 OF 47 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved. (2004) on STN DUPLICATE 9
SO The Plant cell, Mar 1998. Vol. 10, No. 3. p. 413-426
Publisher: [Rockville, MD : American Society of Plant Physiologists, c1989-
CODEN: PLCEEW; ISSN: 1040-4651

=> d 24 ab

L3 ANSWER 24 OF 47 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved. (2004) on STN DUPLICATE 10

AB The maize dull1 (du1) **gene** is a determinant of the structure of endosperm starch, and du1- mutations affect the activity of two enzymes involved in starch biosynthesis, **starch synthase II**(**SSII**) and starch branching enzyme IIa (SBEIIa). Six novel du1- mutations generated in Mutator-active plants were identified. A portion of the du1 locus was cloned by transposon tagging, and nearly full-length Du1 **cDNA** sequence was determined. Du1 codes for a predicted 1674-residue protein, comprising one portion that is similar to SSIII of potato, as well as a large unique region. Du1 transcripts are present in the endosperm during the time of starch biosynthesis, but the mRNA was undetectable in leaf or root tissue. The predicted size of the Du1 **gene** product and its expression pattern are consistent with those of maize **SSII**. The Du1 **gene** product contains two repeated regions in its unique N terminus. One of these contains a sequence identical to a conserved segment of SBEs. We conclude that Du1 codes for a starch synthase, most likely **SSII**, and that secondary effects of du1- mutations, such as reduction of SBEIIa, result from the primary deficiency in this starch synthase.

=> d 23 so

L3 ANSWER 23 OF 47 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved. (2004) on STN DUPLICATE 9

SO The Plant cell, Mar 1998. Vol. 10, No. 3. p. 413-426
Publisher: [Rockville, MD : American Society of Plant Physiologists, c1989-
CODEN: PLCEEW; ISSN: 1040-4651

=> d 24 so

L3 ANSWER 24 OF 47 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved. (2004) on STN DUPLICATE 10

SO The Plant cell, Mar 1998. Vol. 10, No. 3. p. 399-412
Publisher: [Rockville, MD : American Society of Plant Physiologists, c1989-
CODEN: PLCEEW; ISSN: 1040-4651

=> d 25 ab

L3 ANSWER 25 OF 47 CAPLUS COPYRIGHT 2004 ACS on STN

AB The present invention relates to an amino acid sequence of second starch branching enzyme (SBE II) of potato and a fragment thereof as well as to the corresponding isolated DNA sequences. Complementary DNA encoding SBE II was isolated from potato tubers using degenerate PCR amplification primers based on partial peptide sequences followed by RACE (rapid amplification of **cDNA** ends). The **cDNA** contains an open reading frame of 2634 bp, encoding a precursor protein of 878 amino acid residues; the mature protein is predicted to contain 830 amino acids. Furthermore, the invention relates to vectors comprising such an isolated DNA sequence, to processes for production of transgenic potatoes, and to the use of said potatoes for the production of starch. The vectors may contain DNA sequences in a sense or antisense orientation; addnl. vectors may

encode antisense DNA for potato starch branching enzyme I, starch synthases II and III, starch disproportionating enzyme, or starch debranching enzyme. The starch obtained will show a changed pattern of branching of amylopectin as well as a changed amylose/amylopectin ratio.

=> d 25 pi

L3 ANSWER 25 OF 47 CAPLUS COPYRIGHT 2004 ACS on STN

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9720040	A1	19970605	WO 1996-SE1558	19961128
	W: AL, AM, AT, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, CZ, DE, DE, DK, DK, EE, EE, ES, FI, FI, GB, GE, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK, TJ, TM, TR, TT, UA, UG, US, UZ, VN, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: KE, LS, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
	SE 9504272	A	19970530	SE 1995-4272	19951129
	SE 513208	C2	20000731		
	SE 9601506	A	19970530	SE 1996-1506	19960419
	SE 513209	C2	20000731		
	CA 2238948	AA	19970605	CA 1996-2238948	19961128
	AU 9677165	A1	19970619	AU 1996-77165	19961128
	EP 863983	A2	19980916	EP 1996-940226	19961128
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	CN 1207125	A	19990203	CN 1996-199514	19961128
	CN 1112443	B	20030625		
	JP 2000500978	T2	20000202	JP 1997-520417	19961128
	NO 9802443	A	19980724	NO 1998-2443	19980528
	US 6169226	B1	20010102	US 1998-87277	19980529
	US 6469231	B1	20021022	US 2000-658499	20000908
	US 2003046730	A1	20030306	US 2002-254534	20020926

=> d 27 ab

L3 ANSWER 27 OF 47 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN

=> d 27 so

L3 ANSWER 27 OF 47 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
SO Plant Physiology (Rockville), (1997) Vol. 114, No. 3 SUPPL., pp. 48-49.
Meeting Info.: PLANT BIOLOGY '97: 1997 Annual Meetings of the American Society of Plant Physiologists and the Canadian Society of Plant Physiologists, Japanese Society of Plant Physiologists and the Australian Society of Plant Physiologists. Vancouver, British Columbia, Canada. August 2-6, 1997.
CODEN: PLPHAY. ISSN: 0032-0889.

=> d 30 ab

L3 ANSWER 30 OF 47 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved. (2004) on STN DUPLICATE 14
AB In this paper we provide further evidence about the nature of a 77-kD starch synthase (**SSII**) that is both soluble and bound to the starch granules in developing pea (Pisum sativum L.) embryos. Mature

SSII gives rise to starch synthase activity when expressed in a strain of Escherichia coli lacking glycogen synthase. In transgenic potatoes (Solanum tuberosum L.) expressing **SSII**, the protein is both soluble and bound to the starch granules. These results confirm that **SSII** is a starch synthase and indicate that partitioning between the soluble and granule-bound fraction of storage organs is an intrinsic property of the protein. A 60-kD isoform of starch synthase found both in the soluble and granule-bound fraction of the pea embryos is probably derived by the processing of **SSII** and is a different **gene** product from GBSSI, the exclusively granule-bound 59-kD isoform of starch synthase that is similar to starch syntheses encoded by the waxy genes of cereals and the amf **gene** of potatoes. Consistent with this, expression in E. coli of an N-terminally truncated version of **SSII** gives rise to starch synthase activity.

=> d 31-40 ti

L3 ANSWER 31 OF 47 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved. (2004) on STN DUPLICATE 15
TI A Bacillus sphaericus **gene** encoding a novel type of mosquitocidal toxin of 31.8 of kDA.

L3 ANSWER 32 OF 47 CAPLUS COPYRIGHT 2004 ACS on STN
TI Three isoforms of starch synthase and two isoforms of branching enzyme are present in potato tuber starch

L3 ANSWER 33 OF 47 CAPLUS COPYRIGHT 2004 ACS on STN
TI Biochemical characterization and molecular cloning of starch synthase I from maize endosperm

L3 ANSWER 34 OF 47 CAPLUS COPYRIGHT 2004 ACS on STN
TI Bacillus sphaericus **gene** mtx toxin expression and use as mosquito larva insecticide

L3 ANSWER 35 OF 47 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved. (2004) on STN DUPLICATE 16
TI Biochemical and molecular characterization of a novel starch synthase from potato tubers.

L3 ANSWER 36 OF 47 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 17
TI Starch branching enzymes belonging to distinct enzyme families are differentially expressed during pea embryo development

L3 ANSWER 37 OF 47 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved. (2004) on STN DUPLICATE 18
TI Expression of mosquitocidal toxin genes in a gas-vacuolated strain of Ancylobacter aquaticus.

L3 ANSWER 38 OF 47 CAPLUS COPYRIGHT 2004 ACS on STN
TI Transgenic Caulobacter expressing genes for Bacillus toxins as pesticides

L3 ANSWER 39 OF 47 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved. (2004) on STN DUPLICATE 19
TI Toward an understanding of the biogenesis of the starch granule. Evidence that Chlamydomonas soluble **starch synthase II**

controls the synthesis of intermediate size glucans of amylopectin.

L3 ANSWER 40 OF 47 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
TI Cytotoxicity and ADP-ribosylating activity of the mosquitocidal toxin from Bacillus sphaericus **SSII**-1: Possible roles of the 27- and 70-kilodalton peptides.

=> d 32 ab

L3 ANSWER 32 OF 47 CAPLUS COPYRIGHT 2004 ACS on STN
AB Proteins were extracted from tuber starch of a normal and a transgenic potato line and separated by SDS gel electrophoresis. Granule-bound starch synthase I (GBSS I) was absent in the latter potato. In-gel digestion of specific protein bands, isolation of peptides by reversed phase chromatog. and finally sequencing, showed that three isoforms of starch synthase and two isoforms of branching enzyme (SBE) were present in the starch. A **cDNA** fragment for SBE II was isolated.

=> d 35 ab

L3 ANSWER 35 OF 47 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved. (2004) on STN DUPLICATE 16
AB An isoform of starch synthase from potato tubers which is present both in the stroma of the plastic and tightly bound to starch granules has been identified biochemically and a **cDNA** has been isolated. The protein encoded by the **cDNA** is 79.9 kDa and has a putative transit peptide and a distinct N-terminal domain which is predicted to be highly flexible. It is similar in both amino acid sequence and predicted structure to the granule-bound **starch synthase II** (GBSSII) of pea embryos. When expressed in Escherichia coli, the mature protein has starch synthase activity. The importance of the isoform has been assessed by biochemical measurements and antisense transformation experiments in which the amount of the isoform in the tuber is severely and specifically reduced. Both approaches indicate that the isoform contributes a maximum of 15% of the total starch synthase activity of the tuber. It is suggested that this isoform and the GBSSII of pea embryos represent a widely distributed class of isoforms of starch synthase. The contribution to total starch synthase activity of members of this class probably varies considerably from one type of storage organ to another.

=> d 35 so

L3 ANSWER 35 OF 47 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved. (2004) on STN DUPLICATE 16
SO The Plant journal : for cell and molecular biology, Aug 1995. Vol. 8, No. 2. p. 283-294
Publisher: Oxford : Blackwell Scientific Publishers and BIOS Scientific Publishers in association with the Society for Experimental Biology, c1991-
ISSN: 0960-7412

=> d 36 ab

L3 ANSWER 36 OF 47 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 17
AB **CDNA** clones for two isoforms of starch branching enzyme (SBEI

and SBEII) have been isolated from pea embryos and sequenced. The deduced amino acid sequences of pea SBEI and SBEII are closely related to starch branching enzymes of maize, rice, potato and cassava and a number of glycogen branching enzymes from yeast, mammals and several prokaryotic species. In comparison with SBEI, the deduced amino acid sequence of SBEII lacks a flexible domain at the N-terminus of the mature protein. This domain is also present in maize SBEII and rice SBEIII and resembles one previously reported for pea granule-bound **starch synthase II** (GBSSII). However, in each case it is missing from the other isoform of SBE from the same species. On the basis of this structural feature (which exists in some isoforms from both monocots and dicots) and other differences in sequence, SBEs from plants may be divided into two distinct enzyme families. There is strong evidence from our own and other work that the amylopectin products of the enzymes from these two families are qual. different. Pea SBEI and SBEII are differentially expressed during embryo development. SBEI is relatively highly expressed in young embryos while maximum expression of SBEII occurs in older embryos. The differential expression of isoforms which have distinct catalytic properties means that the contribution of each SBE isoform to starch biosynthesis changes during embryo development. Qual. measurement of amylopectin from developing and maturing embryos confirms that the nature of amylopectin changes during pea embryo development and that this correlates with the differential expression of SBE isoforms.

=> d 36 so

L3 ANSWER 36 OF 47 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 17
SO Plant Journal (1995), 7(1), 3-15
CODEN: PLJUED; ISSN: 0960-7412

=> d 39 ab

L3 ANSWER 39 OF 47 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved. (2004) on STN DUPLICATE 19
AB Low starch mutants of Chlamydomonas reinhardtii were isolated after x-ray mutagenesis of wild-type strain 137C. The mutants accumulated 20-40% of the normal amount and displayed a 2-fold decrease of the total glycogen-primed soluble starch synthase activity. Three different mutant alleles of the st-3 **gene** were isolated that were characterized by similar defects and displayed a net increase in amylose content. Amylose-primed synthesis of glucan in native gels revealed a complete wipe out of one of the soluble starch synthases. Zymograms and kinetic analyses performed both in the mutant and in partially purified wild type extracts reveal at least two distinct activities that are partly analogous to higher plant soluble starch synthases I and III (SSI and II). The st-3 mutants were defective for **SSII**. Methylation and debranching of the purified amylopectin fraction clearly show a decrease in the number of intermediate size glucans (dp8 to 50) and an absolute and relative increase of very short glucans (dp2 to 7). These results suggest that a soluble starch synthase may be necessary for the synthesis or maintenance of intermediate size glucans that are the main component of the branched clusters of amylopectin.

=> d 41-47 ti

L3 ANSWER 41 OF 47 CAPLUS COPYRIGHT 2004 ACS on STN
TI Bacteriocin production by Bacillus sphaericus

L3 ANSWER 42 OF 47 AGRICOLA Compiled and distributed by the National

Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved. (2004) on STN DUPLICATE 20

TI Expression of the mosquitocidal toxins of Bacillus sphaericus and Bacillus thuringiensis subsp. israelensis by recombinant Caulobacter crescentus, a vehicle for biological control of aquatic insect larvae.

L3 ANSWER 43 OF 47 CAPLUS COPYRIGHT 2004 ACS on STN
TI Manufacture of insecticidal proteins with caulobacters

L3 ANSWER 44 OF 47 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved. (2004) on STN DUPLICATE 21

TI Cloning, sequencing, and expression of a **gene** encoding a 100-kilodalton mosquitocidal toxin from Bacillus sphaericus **SSII** -1.

L3 ANSWER 45 OF 47 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 22
TI Comparison of soluble starch synthases and branching enzymes from leaves and kernels of normal and amylose-extender maize

L3 ANSWER 46 OF 47 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 23
TI Biocide **gene**(s) and biocidal activity in different strains of Bacillus sphaericus. Expression of the **gene**(s) in E. coli maxicells

L3 ANSWER 47 OF 47 CAPLUS COPYRIGHT 2004 ACS on STN
TI Evidence for independent genetic control of the multiple forms of maize endosperm branching enzymes and starch synthases

=> d 45 ab

L3 ANSWER 45 OF 47 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 22
AB Soluble starch synthases (SS) and branching enzymes (BE) from 20-day-old maize leaves and 22-day-old seeds of normal and amylose-extender (ae) were purified by DEAE-cellulose chromatog. Elution profiles of leaf exts. showed 1 major SS and 2 BE fractions from both genotypes. The SS fractions from normal and ae leaf exts. were capable of citrate-stimulated starch synthesis and had different reaction rates with various primers. The 2 BE fractions from normal leaf exts. differed significantly from each other but not when compared to the same BE from ae. Comparison of BE fractions from ae and normal leaves showed no differences based on chromatog., kinetic, and immunol. properties. Comparison of the leaf enzymes with endosperm enzymes showed major differences. Leaf exts. did not contain **SSII** or BEIIb observed in endosperm exts. Developing ae endosperm lacked BEIIb activity and ae was the structural **gene** for BEIIb. The tissue-specific expression of BEIIb in the endosperm provided the basis for explaining the tissue-specific expression of ae. It was proposed that as BEIIb is expressed in the endosperm, but not leaves, allelic substitution at the ae locus modifies only endosperm starch synthesis.

=> d 45 so

L3 ANSWER 45 OF 47 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 22
SO Biochemical Genetics (1989), 27(9-10), 521-32
CODEN: BIGEBA; ISSN: 0006-2928

=> d 47 ab

L3 ANSWER 47 OF 47 CAPLUS COPYRIGHT 2004 ACS on STN
AB Soluble starch synthase and starch-branching enzymes in exts. from kernels of 4 corn genotypes were compared. Exts. from normal (nonmutant) corn were found to contain 2 starch synthases and 3 branching enzyme fractions. The different fractions could be distinguished by chromatog. properties and kinetic properties under various assay conditions. Kernels homozygous for the recessive amylose-extender (ae) allele were missing branching enzyme IIb. In addition, the citrate-stimulated activity of starch synthase I was reduced. This activity could be regenerated by the addition of branching enzyme to this fraction. No other starch synthase fractions were different from normal enzymes. Exts. from kernels homozygous for the recessive dull (du) allele were found to contain lower branching enzyme IIa and **starch synthase II** activities.
Other fractions were not different from the normal enzymes. Anal. of exts. from kernels of the double mutant ae du indicated that the 2 mutants act independently. Branching enzyme IIb was absent and the citrate-stimulated reaction of starch synthase I was reduced but could be regenerated by the addition of branching enzyme (ae properties) and both branching enzyme IIa and **starch synthase II**
were greatly reduced (du properties). Starch from ae and du endosperms contains higher amylose (66 and 42%, resp.) than normal endosperm (26%). In addition, the amylopectin fraction of ae starch is less highly branched than amylopectin from normal or du starch. The above observations suggest that the alterations of the starch may be accounted for by changes in the soluble synthase and branching enzyme fractions.

=> d 47 so

L3 ANSWER 47 OF 47 CAPLUS COPYRIGHT 2004 ACS on STN
SO Plant Physiology (1981), 67(6), 1141-5
CODEN: PLPHAY; ISSN: 0032-0889

=> s l3 and wheat
L4 6 L3 AND WHEAT

=> d 1-6 ti

L4 ANSWER 1 OF 6 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved. (2004) on STN
TI Effect of temperature on expression of genes encoding enzymes for starch biosynthesis in developing **wheat** endosperm.

L4 ANSWER 2 OF 6 CAPLUS COPYRIGHT 2004 ACS on STN
TI The structural organisation of the **gene** encoding class II starch synthase of **wheat** and barley and the evolution of the genes encoding starch synthases in plants

L4 ANSWER 3 OF 6 CAPLUS COPYRIGHT 2004 ACS on STN
TI Mutations in **starch synthase II** resulting in reduced amylopectin content and higher dietary fiber of grain

L4 ANSWER 4 OF 6 CAPLUS COPYRIGHT 2004 ACS on STN
TI Caryopsis-specific promoter of **wheat** for use in tissue-specific expression of foreign genes in cereal

L4 ANSWER 5 OF 6 CAPLUS COPYRIGHT 2004 ACS on STN
TI Transgenic plant expressing new starch branching enzyme IIb (BEIIb) from **wheat** and its use for improvement of food and non food product quality

L4 ANSWER 6 OF 6 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
TI **Wheat** granule-bound starch synthase I and II are encoded by separate genes that are expressed in different tissues.

=> s l3 and (ribozyme or gene target? or homologous recombination)
L5 0 L3 AND (RIBOZYME OR GENE TARGET? OR HOMOLOGOUS RECOMBINATION)

=> s l3 and (antisense or anti sense)
L6 5 L3 AND (ANTISENSE OR ANTI SENSE)

=> dup rem l6
PROCESSING COMPLETED FOR L6
L7 5 DUP REM L6 (0 DUPLICATES REMOVED)

=> d 1-5 ti

L7 ANSWER 1 OF 5 CAPLUS COPYRIGHT 2004 ACS on STN
TI Mutations in **starch synthase II** resulting in reduced amylopectin content and higher dietary fiber of grain

L7 ANSWER 2 OF 5 CAPLUS COPYRIGHT 2004 ACS on STN
TI Transgenic plant expressing new starch branching enzyme IIb (BEIIb) from wheat and its use for improvement of food and non food product quality

L7 ANSWER 3 OF 5 CAPLUS COPYRIGHT 2004 ACS on STN
TI Maize starch synthase **gene** du1 and uses in starch production

L7 ANSWER 4 OF 5 CAPLUS COPYRIGHT 2004 ACS on STN
TI Cloning and **cDNA** sequence of starch branching enzyme II of potato and its use for modification of branching in amylopectin starch

L7 ANSWER 5 OF 5 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved. (2004) on STN
TI Biochemical and molecular characterization of a novel starch synthase from potato tubers.

=> s l3 and (cosuppress? or co-suppress? or gene silenc?)
L8 0 L3 AND (COSUPPRESS? OR CO-SUPPRESS? OR GENE SILENC?)

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NEWS 5	SEP 29	DISSABS now available on STN
NEWS 6	OCT 10	PCTFULL: Two new display fields added
NEWS 7	OCT 21	BIOSIS file reloaded and enhanced
NEWS 8	OCT 28	BIOSIS file segment of TOXCENTER reloaded and enhanced
NEWS 9	NOV 24	MSDS-CCOHS file reloaded
NEWS 10	DEC 08	CABA reloaded with left truncation
NEWS 11	DEC 08	IMS file names changed
NEWS 12	DEC 09	Experimental property data collected by CAS now available in REGISTRY
NEWS 13	DEC 09	STN Entry Date available for display in REGISTRY and CA/CAplus
NEWS 14	DEC 17	DGENE: Two new display fields added
NEWS 15	DEC 18	BIOTECHNO no longer updated
NEWS 16	DEC 19	CROPU no longer updated; subscriber discount no longer available
NEWS 17	DEC 22	Additional INPI reactions and pre-1907 documents added to CAS databases
NEWS 18	DEC 22	IFIPAT/IFIUDB/IFICDB reloaded with new data and search fields
NEWS 19	DEC 22	ABI-INFORM now available on STN
NEWS 20	JAN 27	Source of Registration (SR) information in REGISTRY updated and searchable
NEWS 21	JAN 27	A new search aid, the Company Name Thesaurus, available in CA/CAplus
NEWS 22	FEB 05	German (DE) application and patent publication number format changes
NEWS 23	MAR 03	MEDLINE and LMEDLINE reloaded
NEWS 24	MAR 03	MEDLINE file segment of TOXCENTER reloaded
NEWS 25	MAR 03	FRANCEPAT now available on STN
NEWS 26	MAR 29	Pharmaceutical Substances (PS) now available on STN
NEWS 27	MAR 29	WPIFV now available on STN
NEWS 28	MAR 29	No connect hour charges in WPIFV until May 1, 2004
NEWS 29	MAR 29	New monthly current-awareness alert (SDI) frequency in RAPRA

NEWS EXPRESS	MARCH 5 CURRENT WINDOWS VERSION IS V7.00A, CURRENT MACINTOSH VERSION IS V6.0b(ENG) AND V6.0Jb(JP), AND CURRENT DISCOVER FILE IS DATED 3 MARCH 2004
NEWS HOURS	STN Operating Hours Plus Help Desk Availability
NEWS INTER	General Internet Information
NEWS LOGIN	Welcome Banner and News Items
NEWS PHONE	Direct Dial and Telecommunication Network Access to STN
NEWS WWW	CAS World Wide Web Site (general information)

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FILE 'HOME' ENTERED AT 10:27:49 ON 31 MAR 2004

=> file agricola caplus biosis
COST IN U.S. DOLLARS

	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	0.21	0.21

FILE 'AGRICOLA' ENTERED AT 10:27:57 ON 31 MAR 2004

FILE 'CAPLUS' ENTERED AT 10:27:57 ON 31 MAR 2004
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FILE 'BIOSIS' ENTERED AT 10:27:57 ON 31 MAR 2004
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=> s ((morell m?) or (morell, m?))/au
L1 425 ((MORELL M?) OR (MORELL, M?))/AU

=> s l1 and starch synthase
L2 34 L1 AND STARCH SYNTHASE

=> dup rem l2
PROCESSING COMPLETED FOR L2
L3 20 DUP REM L2 (14 DUPLICATES REMOVED)

=> d 1-10 ti

L3 ANSWER 1 OF 20 CAPLUS COPYRIGHT 2004 ACS on STN
TI Protein phosphorylation in amyloplasts regulates starch branching enzyme activity and protein-protein interactions

L3 ANSWER 2 OF 20 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
TI From bacterial glycogen to starch: Understanding the biogenesis of the plant starch granule.

L3 ANSWER 3 OF 20 CAPLUS COPYRIGHT 2004 ACS on STN
TI Advances in the understanding of starch synthesis in wheat and barley

L3 ANSWER 4 OF 20 CAPLUS COPYRIGHT 2004 ACS on STN
TI Engineering of amylopectin biosynthesis in rice endosperm

L3 ANSWER 5 OF 20 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 1
TI Barley sex6 mutants lack **starch synthase** IIa activity and contain a starch with novel properties

L3 ANSWER 6 OF 20 CAPLUS COPYRIGHT 2004 ACS on STN
TI The structural organisation of the gene encoding class II **starch synthase** of wheat and barley and the evolution of the genes encoding starch synthases in plants

L3 ANSWER 7 OF 20 CAPLUS COPYRIGHT 2004 ACS on STN
TI Mutations in **starch synthase** II resulting in reduced amylopectin content and higher dietary fiber of grain

L3 ANSWER 8 OF 20 CAPLUS COPYRIGHT 2004 ACS on STN
TI Use of perfect markers in wheat quality research and breeding

L3 ANSWER 9 OF 20 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved. (2004) on STN DUPLICATE 2
TI Development of robust PCR-based DNA markers for each homoeo-allele of granule-bound **starch synthase** and their application in wheat breeding programs.

L3 ANSWER 10 OF 20 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 3
TI Genetic mapping of commercially significant starch characteristics in wheat crosses

=> d 2 ab

L3 ANSWER 2 OF 20 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN

=> d 2 so

L3 ANSWER 2 OF 20 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
SO Delmer, Deborah P. [Editor, Reprint Author]; Bohnert, Hans J. [Editor]; Merchant, Sabeeha [Editor]. (2003) pp. 207-233. Annual Review of Plant Biology. Volume 54. print.
Publisher: Annual Reviews, 4139 El Camino Way, P. O. Box 10139, Palo Alto, CA, 94303-0139, USA. Series: Annual Review of Plant Biology.
ISBN: 0-8243-0654-6 (cloth).

=> d 3 ab

L3 ANSWER 3 OF 20 CAPLUS COPYRIGHT 2004 ACS on STN
AB A review. The synthesis of starch in wheat and barley is an important topic for research because of the extensive utility of starch from these crop species in human and animal foods, and in industrial processes. Wheat and barley starches are highly characteristic due to their granular architecture and multi-modal granule size distribution. This granule architecture is important because it defines the ways in which wheat and barley starches behave during food processing. The core starch biosynthetic genes of wheat have been cloned and shown to exist as homeologous sets of genes represented on each of the three wheat genomes. While hexaploidy represents a major impediment to the selection of altered starch phenotypes by phenotypic screening, the availability of methods for identifying the products of homeologous genes from each of the wheat genes has provided methods for the selection of triple null lines from waxy, **starch synthase** IIa, and branching enzyme I genes. In barley, direct phenotypic selection has resulted in the identification of waxy, amo1 and SSIIa mutations. In this paper, we review the state of knowledge of starch synthesis in wheat and barley and discuss the relationships between individual genes and their roles in starch biosynthesis.

=> d 3 so

L3 ANSWER 3 OF 20 CAPLUS COPYRIGHT 2004 ACS on STN
SO Journal of Applied Glycoscience (2003), 50(2), 217-224
CODEN: JAGLFX; ISSN: 1344-7882

=> d 5 ab

L3 ANSWER 5 OF 20 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 1
AB Anal. of barley shrunken grain mutants has identified lines with a novel high amylose starch phenotype. The causal mutation is located at the sex6 locus on chromosome 7H, suggesting the **starch synthase** IIa (ssIIa) gene as a candidate gene altered by the mutation. Consistent with this hypothesis, no evidence of SSIIa protein expression in either the starch granule or soluble fractions of the endosperm was found. Sequences of the **starch synthase** IIa gene, ssIIa, from three independent sex6 lines showed the presence of a stop codon preventing translation of the ssIIa transcript in each line. Perfect segregation of the starch phenotype with the presence of stop codons in the ssIIa gene was obtained, providing strong evidence for the lesion in the ssIIa gene being the causal mutation for the sex6 phenotype. The loss of SSIIa activity in barley leads to novel and informative phenotypes. First, a decrease in amylopectin synthesis to less than 20% of the wild-type levels indicates that SSIIa accounts for the majority of the amylopectin polymer elongation activity in barley. Secondly, in contrast to high amylose starches resulting from branching enzyme downregulation, the sex6 starches have a shortened amylopectin chain length distribution and a reduced gelatinisation temperature Thirdly, the mutation leads to pleiotropic effects on other enzymes of the starch biosynthesis pathway, abolishing the binding of SSI, branching enzyme IIa and branching enzyme IIb to the starch granules of sex6 mutants, while not significantly altering their expression levels in the soluble fraction.

=> d 5 so

L3 ANSWER 5 OF 20 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 1
SO Plant Journal (2003), 34(2), 173-185
CODEN: PLJUED; ISSN: 0960-7412

=> d 6 ab

L3 ANSWER 6 OF 20 CAPLUS COPYRIGHT 2004 ACS on STN
AB Wheat and barley contain at least four classes of starch synthases in the endosperm, granule bound **starch synthase** I (GBSSI) and starch synthases I, II and III (SSI, SSII, SSIII). In this work, SSII in barley is shown to be associated with the starch granule by using antibodies. A cDNA from barley encoding SSII and the genes for SSII from barley and Aegilops tauschii (A. tauschii, the D genome donor to wheat) are characterized. Fluorescent in situ hybridization (FISH) and PCR were used to localize the wheat SSII gene to the short arm of chromosome 7, showing synteny with the location of the rice SSII gene to the short arm of chromosome 6. Comparison of the genes encoding SSII of A. tauschii, barley and Arabidopsis showed a conserved exon-intron structure although the size of the introns varied considerably. Extending such comparison between the genes encoding starch synthases (GBSSI, SSI, SSII and SSIII) from A. tauschii and Arabidopsis showed that the exon-intron structures are essentially conserved. Sep. and distinct genes for the individual starch synthases therefore existed before the separation of monocotyledons and dicotyledons.

=> d 6 so

L3 ANSWER 6 OF 20 CAPLUS COPYRIGHT 2004 ACS on STN
SO Functional & Integrative Genomics (2003), 3(1-2), 76-85
CODEN: FIGUBY; ISSN: 1438-793X

=> d 9 ab

L3 ANSWER 9 OF 20 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved. (2004) on STN DUPLICATE 2

=> d 9 so

L3 ANSWER 9 OF 20 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved. (2004) on STN DUPLICATE 2
SO Australian journal of agricultural research, 2001. Vol. 52, No. 11/12. p. 1409-1416
Publisher: Collingwood, Victoria, Australia : CSIRO.
CODEN: AJAEA9; ISSN: 0004-9409
Gov. Source: Federal

=> d 11-20 ti

L3 ANSWER 11 OF 20 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
TI Wheat starch biosynthesis.

L3 ANSWER 12 OF 20 CAPLUS COPYRIGHT 2004 ACS on STN
TI Wheat starch synthases and cDNAs and genes and uses in plant breeding and alteration of plant starch composition or content

L3 ANSWER 13 OF 20 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved. (2004) on STN DUPLICATE 4
TI The structure and expression of the wheat **starch synthase** III gene. Motifs in the expressed gene define the lineage of the **starch synthase** III gene family.

L3 ANSWER 14 OF 20 CAPLUS COPYRIGHT 2004 ACS on STN
TI Starch biosynthesis genes from Triticum tauschii and their use to regulate gene expression in plants

L3 ANSWER 15 OF 20 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved. (2004) on STN DUPLICATE 5
TI Cloning and characterization of a gene encoding wheat **starch synthase** I.

L3 ANSWER 16 OF 20 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved. (2004) on STN DUPLICATE 6
TI The localization and expression of the class II starch synthases of wheat.

L3 ANSWER 17 OF 20 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved. (2004) on STN DUPLICATE 7
TI Novel, starch-like polysaccharides are synthesized by an unbound form of granule-bound **starch synthase** in glycogen-accumulating mutants of Chlamydomonas reinhardtii.

L3 ANSWER 18 OF 20 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 8

TI A single genetic locus associated with starch granule properties and noodle quality in wheat

L3 ANSWER 19 OF 20 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 9
TI The major proteins of wheat endosperm starch granules

L3 ANSWER 20 OF 20 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved. (2004) on STN
TI The biochemistry and molecular biology of starch synthesis in cereals.

=> d 11 ab

L3 ANSWER 11 OF 20 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
AB Starch biosynthesis in plants involves the concerted action of a number of enzymes, including ADPglucose pyrophosphorylase, starch synthases, branching enzymes and debranching enzymes. We report on the cloning and characterisation of genes encoding these enzymes from wheat and on their chromosomal locations. The prospects for manipulating wheat starch structure and functionality using these genes is discussed.

=> d 11 so

L3 ANSWER 11 OF 20 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
SO Euphytica, (2001) Vol. 119, No. 1-2, pp. 55-58. print.
CODEN: EUPHAA. ISSN: 0014-2336.

=> d 12 ab

L3 ANSWER 12 OF 20 CAPLUS COPYRIGHT 2004 ACS on STN
AB The present invention provides isolated nucleic acid mols. encoding wheat starch synthases, and probes and primers derived therefrom, which are useful in the modification of plant starch content and/or composition, and for screening plant lines to determine the presence of natural and/or induced mutations in **starch synthase** genes which affect starch content and/or composition More particularly, the isolated nucleic acid mols. of the present invention further provide for the screening-assisted breeding of plants having desirable starch content and/or composition, in addition to providing for the direct genetic manipulation of plant starch content and/or composition

=> d 12 so

L3 ANSWER 12 OF 20 CAPLUS COPYRIGHT 2004 ACS on STN
SO PCT Int. Appl., 209 pp.
CODEN: PIXXD2

=> d 12 pi

L3 ANSWER 12 OF 20 CAPLUS COPYRIGHT 2004 ACS on STN

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2000066745	A1	20001109	WO 2000-AU385	20000428

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE,

SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA,
ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE,
DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF,
CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG
EP 1179074 A1 20020213 EP 2000-920268 20000428
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
IE, SI, LT, LV, FI, RO

=> d 16 ab

L3 ANSWER 16 OF 20 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved. (2004) on STN DUPLICATE 6

AB The starch granules of hexaploid wheat (Triticum aestivum) contain a group of three proteins known as SGP-1 (starch granule protein-1) proteins, which have apparent molecular masses of 100, 108, and 115 kD. The nature and role of these proteins has not been defined previously. We demonstrate that these polypeptides are starch synthases that are present in both the starch granule and the soluble fraction at the early stages of wheat endosperm development, but that are exclusively granule bound at mid and late endosperm development. A partial cDNA clone encoding a fragment of the 100-kD protein was obtained by screening a wheat endosperm cDNA expression library using monoclonal antibodies. Three classes of cDNA were subsequently isolated from a wheat endosperm cDNA library by nucleic acid hybridization and were shown to encode the 100-, 108-, and 115-kD proteins. The cDNA sequences are highly homologous to class II starch synthases and have the highest homology with the maize SSIIa (**starch synthase** IIa) gene. mRNA for the SGP-1 proteins was detected in the leaf, pre-anthesis florets, and endosperm of wheat and is highly expressed in the leaf and in the grain during the early to mid stages of development. We discuss the roles of the SGP-1 proteins in starch biosynthesis in wheat.

=> d 16 so

L3 ANSWER 16 OF 20 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved. (2004) on STN DUPLICATE 6

SO Plant physiology, Aug 1999. Vol. 120, No. 4. p. 1147-1155
Publisher: Rockville, MD : American Society of Plant Physiologists, 1926-
CODEN: PLPHAY; ISSN: 0032-0889

=> d 18 ab

L3 ANSWER 18 OF 20 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 8

AB An extensive survey of wheat cultivars showed a complete association between the presence of a granule bound **starch synthase** (GBSS-4A) null mutation and the classification of the resp. cultivar into the white salted noodle category. Since flour swelling volume (FSV) is a standard assay of flour used to identify cultivars that have potential for the production of white salted noodles, the results of the survey were investigated further by studying the genetic association of GBSS-4A null genotypes and FSV. A study of 34, F2 derived families, from a cross between wheat cultivars Reeves (good noodle texture, high FSV) and Kulin (poor noodle texture, low FSV), provided clear evidence for the genetic association of a granule bound **starch synthase** (GBSS-4A) null mutation and FSV. The mol. basis for the affect of the GBSS-4A null mutation was not simply due to a decrease in amylose content in the starch

granules. Instead, the null mutation most likely causes a subtle change in starch structure as indicated by the association of high starch viscosity with high FSV and the GBSS-4A null genotype. The study suggests that assaying for the GBSS-4A null mutation at the DNA level may provide a valuable screen for noodle quality at early stages in a breeding program aimed at good white salted noodle quality.

=> d 18 so

L3 ANSWER 18 OF 20 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 8
SO Journal of Cereal Science (1998), 27(1), 7-13
CODEN: JCSCDA; ISSN: 0733-5210

=> d 19 ag
'AG' IS NOT A VALID FORMAT
In a multifile environment, a format can only be used if it is valid
in at least one of the files. Refer to file specific help messages
or the STNGUIDE file for information on formats available in
individual files.
REENTER DISPLAY FORMAT FOR ALL FILES (FILEDEFAULT):ab

L3 ANSWER 19 OF 20 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 9
AB Wheat starch contains two classes of associated proteins: proteins which are embedded within the granule and loosely associated surface proteins. The characterization of the major proteins that are embedded in the granule are described. Gel electrophoresis on the basis of size resolved these proteins into five bands of mol. wts. 60, 75, 85, 100 and 105 kDa. These polypeptides were demonstrated to be within the granule by their resistance to proteinase K digestion when granules were ungelatinized. The N-terminal sequences of these polypeptides are reported. The most prominent polypeptide is the 60 kDa granule-bound **starch synthase**. The N-terminal sequence obtained from the 75 kDa polypeptide shows homol. to rice soluble **starch synthase**. The 85 kDa band was resolved into at least two types of polypeptides, one of which reacted with polyclonal antiserum to the maize branching enzyme IIb. The 100 and 105 kDa polypeptides were located only in the granule and are related, on the basis of N-terminal sequence similarity and cross-reactivity to monoclonal antibodies. SDS-PAGE and monoclonal antibody cross-reactivity expts. suggest that the 100 and 105 kDa polypeptides are absent from starch granules from all other species examined, including other cereals. Thus, all the major granule proteins are involved in starch biosynthesis.

=> d 19 so

L3 ANSWER 19 OF 20 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 9
SO Australian Journal of Plant Physiology (1995), 22(5), 793-803
CODEN: AJPPCH; ISSN: 0310-7841

=> d 20 ab

L3 ANSWER 20 OF 20 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved. (2004) on STN

=> d 20 so

L3 ANSWER 20 OF 20 AGRICOLA Compiled and distributed by the National

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SO Australian journal of plant physiology, 1995. Vol. 22, No. 4. p. 647-660
Publisher: Melbourne, Commonwealth Scientific and Industrial Research Organization.
CODEN: AJPPCH; ISSN: 0310-7841
Gov. Source: Federal

=> s ((kaleen z?) or (kaleen, z?))/au
L4 0 ((KALEEN Z?) OR (KALEEN, Z?))/AU

=> s ((li z?) or (li, z?))/au
L5 24805 ((LI Z?) OR (LI, Z?))/AU

=> s ((li zho?) or (li, zho?))/au
L6 2501 ((LI ZHO?) OR (LI, ZHO?))/AU

=> s l6 and starch synthase
L7 10 L6 AND STARCH SYNTHASE

=> dup rem l7
PROCESSING COMPLETED FOR L7
L8 7 DUP REM L7 (3 DUPLICATES REMOVED)

=> d 1-7 ti

L8 ANSWER 1 OF 7 CAPLUS COPYRIGHT 2004 ACS on STN
TI Advances in the understanding of starch synthesis in wheat and barley

L8 ANSWER 2 OF 7 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 1
TI Barley sex6 mutants lack **starch synthase** IIa activity and contain a starch with novel properties

L8 ANSWER 3 OF 7 CAPLUS COPYRIGHT 2004 ACS on STN
TI The structural organisation of the gene encoding class II **starch synthase** of wheat and barley and the evolution of the genes encoding starch synthases in plants

L8 ANSWER 4 OF 7 CAPLUS COPYRIGHT 2004 ACS on STN
TI Wheat starch synthases and cDNAs and genes and uses in plant breeding and alteration of plant starch composition or content

L8 ANSWER 5 OF 7 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 2
TI The structure and expression of the wheat **starch synthase** III gene. Motifs in the expressed gene define the lineage of the **starch synthase** III gene family

L8 ANSWER 6 OF 7 CAPLUS COPYRIGHT 2004 ACS on STN
TI Starch biosynthesis genes from Triticum tauschii and their use to regulate gene expression in plants

L8 ANSWER 7 OF 7 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 3
TI The localization and expression of the class II starch synthases of wheat

=> d 6 ab

L8 ANSWER 6 OF 7 CAPLUS COPYRIGHT 2004 ACS on STN
AB The present invention relates to nucleic acid sequences encoding enzymes of the starch biosynthetic pathway in a cereal plant, wherein the enzyme is selected from the group consisting of starch branching enzyme I, starch branching enzyme II, starch soluble synthase I, and debranching enzyme.

Genomic and cDNAs encoding these enzymes were characterized from Triticum tauschii, which is the D genome donor of hexaploid bread wheat. Because of the very close relationship between T. tauschii and wheat, the results obtained with T. tauschii can be directly applied to wheat with little if any modification. The invention includes sense and antisense nucleic acid constructs for targeting a starch-biosynthesis gene to the endosperm, plant transformation by plasmid constructs, and starch modification in plant materials and food products. Primers/probes are also provided for the identification of null or altered alleles for use in plant breeding.

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=> d 7 pi

L8   ANSWER 7 OF 7  CAPLUS  COPYRIGHT 2004 ACS on STN  DUPLICATE 3


=> d 7 so

L8   ANSWER 7 OF 7  CAPLUS  COPYRIGHT 2004 ACS on STN  DUPLICATE 3
SO   Plant Physiology (1999), 120(4), 1147-1155
     CODEN: PLPHAY; ISSN: 0032-0889


=> d 6 pi

L8   ANSWER 6 OF 7  CAPLUS  COPYRIGHT 2004 ACS on STN
     PATENT NO.          KIND  DATE           APPLICATION NO.  DATE
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PI   WO 9914314          A1    19990325       WO 1998-AU743    19980911
         W:  AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE,
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             KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX,
             NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT,
             UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
         RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES,
             FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI,
             CM, GA, GN, GW, ML, MR, NE, SN, TD, TG
     CA 2303407          AA    19990325       CA 1998-2303407  19980911
     AU 9889670          A1    19990405       AU 1998-89670    19980911
     AU 727294           B2    20001207
     EP 1012250          A1    20000628       EP 1998-941169   19980911
         R:  AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
             IE, FI
     NZ 503137           A     20001027       NZ 1998-503137   19980911
     JP 2001516575       T2    20011002       JP 2000-511854   19980911


=> s ((rahman s?) or (rahman, s?))/au
L9         1633 ((RAHMAN S?) OR (RAHMAN, S?))/AU

=> s l9 and starch synthase
L10          27 L9 AND STARCH SYNTHASE

=> dup rem l10
PROCESSING COMPLETED FOR L10
L11          14 DUP REM L10 (13 DUPLICATES REMOVED)

=> d 1-14 ti

L11  ANSWER 1 OF 14  CAPLUS  COPYRIGHT 2004 ACS on STN
TI   Advances in the understanding of starch synthesis in wheat and barley

L11  ANSWER 2 OF 14  CAPLUS  COPYRIGHT 2004 ACS on STN
TI   Engineering of amylopectin biosynthesis in rice endosperm
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L11 ANSWER 3 OF 14 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 1
TI Barley sex6 mutants lack **starch synthase** IIa activity and contain a starch with novel properties

L11 ANSWER 4 OF 14 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved. (2004) on STN DUPLICATE 2
TI The structural organisation of the gene encoding class II **starch synthase** of wheat and barley and the evolution of the genes encoding starch synthases in plants.

L11 ANSWER 5 OF 14 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
TI Wheat starch biosynthesis.

L11 ANSWER 6 OF 14 CAPLUS COPYRIGHT 2004 ACS on STN
TI Wheat starch synthases and cDNAs and genes and uses in plant breeding and alteration of plant starch composition or content

L11 ANSWER 7 OF 14 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved. (2004) on STN DUPLICATE 3
TI The structure and expression of the wheat **starch synthase** III gene. Motifs in the expressed gene define the lineage of the **starch synthase** III gene family.

L11 ANSWER 8 OF 14 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved. (2004) on STN DUPLICATE 4
TI The genes encoding granule-bound starch synthases at the waxy loci of the A, B, and D progenitors of common wheat.

L11 ANSWER 9 OF 14 CAPLUS COPYRIGHT 2004 ACS on STN
TI Starch biosynthesis genes from Triticum tauschii and their use to regulate gene expression in plants

L11 ANSWER 10 OF 14 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved. (2004) on STN DUPLICATE 5
TI Cloning and characterization of a gene encoding wheat **starch synthase** I.

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TI The localization and expression of the class II starch synthases of wheat.

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TI The biochemistry and molecular biology of starch synthesis in cereals.

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TI The genes encoding granule-bound starch synthases at the waxy loci of the A, B, and D progenitors of common wheat.

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TI Cloning and characterization of a gene encoding wheat **starch synthase** I.

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TI The major proteins of wheat endosperm starch granules

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TI The biochemistry and molecular biology of starch synthesis in cereals.

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